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ABSTRACT

The purpose of a study was to develop a vision of the postsecondary vocational technical curriculum that would be appropriate for the social context anticipated in the year 2000. It was based on the premise that the curriculum is likely to be shaped by a number of groups of decision makers and will most likely include elements upon which those groups agree. The study developed assumptions about the future social context of postsecondary vocational education. A list of characteristics that can be manipulated to adapt the future curriculum was drawn up and organized in 10 categories (program needs assessment, program access, articulation among programs and institutions, program purpose, content identification, evaluation of student learning, program format, lesson structuring, learning resources, and program evaluation). Finally, a scenario of the probable future was developed, based on similarities and differences in the perceptions of the curriculum among key decision-making groups who will influence curricular change. (KC)

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Visions for Change

The Context and Characteristics of Postsecondary Vocational Education Curriculum in the Year 2000: Implications for Policy

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" 'Before I draw nearer to that stone to which you point,' said Scrooge, 'answer me one question. Are these the shadows of things that Will be, or are they shadows of the things that May be only? . . .

" 'Men's courses will foreshadow certain ends, to which, if persevered in, they must lead,' said Scrooge. 'But if the courses be departed from, the ends will change.' "

—*Charles Dickens*
A Christmas Carol

Introduction

The **purpose** of this study was to develop a vision of postsecondary vocational technical curriculum that would be appropriate for the social context anticipated in the year 2000. It was based on the premise that the curriculum is likely to be shaped by a number of groups of decision makers, and will most likely include elements upon which those groups agree.

The study developed **assumptions** about the future social context of postsecondary vocational education, a list of **characteristics** that can be manipulated to adapt the future curriculum, and a **scenario** of the probable future. The scenario was based on similarities and differences in the perceptions of the curriculum among key decision-making groups who will influence curricular change. (For information on the study **methodology**, see the appendix.)

Assumptions

About the Future Context of Postsecondary Vocational Education

The study identified seven categories of assumptions concerning the future that may affect postsecondary vocational education. Those categories, defined as "curriculum determinants," are cultural values, information-ideas, demographics, economics, technology, legislative and political factors, and institutional factors. Ninety-two assumptions were identified and documented.

In general, the assumptions indicated that there will be slow but steady economic growth, increased personal consumption of goods and services, and a decline in the proportion of jobs in the goods-producing sector of our economy. We can expect an expansion of the service sector of the economy, with a pluralistic, multicultural social mix in the United States.

There will be an increase in mass communications and advanced information technologies. The importance of the individual will be expressed in a trend toward participative styles in organizations, and values of self-

fulfillment and self-actualization at all levels of society. With the increasing automation of repetitive tasks, workers at all levels will need to be increasingly competent in cognitive and affective, as well as psychomotor skills. Educational institutions will incorporate technology to increase effectiveness and efficiency, and employers and private groups will increasingly deliver educational services.

The following generalizations summarize the assumptions pertaining to the seven curriculum determinants.

Cultural Values

Cultural values are cultural axioms or values that affect other significant changes. Assumptions suggest that cultural changes will be characterized by a heightened awareness and appreciation of individual and group differences. Organizations, particularly employers, will need to provide opportunities for individuals and constituent groups to maximize their own satisfaction and participation. Maximized satisfaction and participation will be viewed as critical to increasing quality and productivity.

Societal and cultural changes will continue to evolve at a rapid rate. Successful workers and institutions will be able to adapt quickly to change. As the educational level of many workers rises and the economy and workplace require the rapid acquisition of new skills and knowledge, both individuals and employers will play an increasing role in the development of educational activities.

Information-Ideas

Information-ideas relate to types of information and methods of distributing ideas. Assumptions indicated that changes in them will influence business and industry, and will be moving forces in the economy. Individuals with skills in the creation of ideas and the manipulation and synthesis of

information will be highly prized. Flexibility and creativity, as well as "people skills" and the ability to adapt to rapid change, will be crucial as well. Many individuals will have several careers during their lifetimes.

Demographics

Demographics relate to population characteristics. Assumptions indicate that the work force of the late twentieth century will become increasingly older and better educated. There will be fewer births, more women in the workplace, and a continued breakdown of sex-role stereotyping. Labor shortages, especially for younger workers at lower pay levels, can also be expected. Significant minority populations will continue to have educational and employment problems. The national trend of centering industrial growth in the southern states will continue.

Economics

Economics relates to the distribution and use of income, wealth, and commodities. Economic changes will reflect the emergence of the information and service sectors as dominant forces in the economy. The cognitive skills of employees will be highly valued, and service to customers will be a heightened business priority. As resources shrink, the emphasis on quality, productivity, and innovation will increase. Organizational charts will continue to flatten, as industry and businesses reduce the size of management and become more lean in an effort to compete efficiently in the marketplace. Fiscal conservatism will be reflected in the public sector as well.

Technology

Technology relates to changes in the processes and machines that result in innovation and affect productivity in industry and education. Technology

will advance rapidly, with many technological innovations occurring in education, office work, and industry. Computers will be used in many contexts as a work force emerges that has lived with them since birth. Educational technology will become increasingly sophisticated and increase options available for curriculum design and delivery. The demand for workers comfortable with and knowledgeable about technological subjects and with technological skills will require schools to educate students accordingly. The implementation of technology in the delivery of instruction will require increased teacher development and funding to purchase and maintain the necessary equipment.

Legislative and Political Factors

Legislative and political factors relate to the laws and societal mandates that result from formal or informal political processes. Assumptions indicate that they will emphasize decentralized administration and decision making. Fiscal conservatism and a general societal distrust of the political system will emerge.

Institutional Factors

Institutional factors reflect the development and structure of enterprises and institutions oriented to promote defined goals and objectives. These factors will be typified by increased participation in decision making and demands to provide better service with fewer resources. Organizations and jobs will be redesigned and restructured, and will include the development of new managerial approaches and greater flexibility and openness. There will be more dialogue across institutional lines, and cooperation will increase between the public and private sectors, such as education and business, to their mutual benefit.

Characteristics of the Future Curriculum

The study identified probable characteristics of post-secondary vocational education in the year 2000. Curriculum characteristics were identified that could be manipulated by decision makers as they develop and implement the future vocational curriculum. Ten categories of curriculum characteristics were created:

- Program needs assessment
- Program access
- Articulation among programs and institutions
- Program purpose
- Content identification
- Evaluation of student learning
- Program format
- Lesson structuring
- Learning resources
- Program evaluation

A 169-item questionnaire was developed around these categories of characteristics and presented to samples representing ten key decision-making groups that will influence the direction of the TI curriculum in the future. They included TI directors, assistant directors, adult directors, curriculum

specialists, financial aid coordinators, counselors, and instructors; employers; and SBVTE members and staff.

Data were analyzed to determine differences among the groups in perceptions of the importance of the alternative curriculum characteristics for Minnesota TIs in the year 2000.

There was general agreement among the perceptions of the groups on the importance or unimportance of a majority of the items. A scenario concerning what will most likely characterize and what will most likely not characterize future curriculum was developed regarding each of the ten categories of characteristics.

Scenario

for the Technical Institute Curriculum in the Year 2000

The scenario describes the probable future, unless conscious and deliberate decisions are made to do things differently. The scenario is based on four premises.

First, curriculum characteristics that were viewed as important by all of the decision-making groups are the most likely to be included in the vocational curriculum of the future. Second, those characteristics that were considered unimportant by all groups are most likely not to be included.

Third, although the groups may differ significantly on the importance of an item, the average rating across groups is an effective indicator of the extent to which an item is important or unimportant. Fourth, if disagreements among groups are large, the likelihood of adopting the characteristic will be substantially reduced.

The scenario was developed around the ten categories of curriculum characteristics.

Program Needs Assessment

Likely to happen

Needs assessment data to determine which programs should be offered in the TI curriculum will include labor market data, data on student demand, and current supply information. Salaries of people in occupations will also be considered. Priority will be given to data gathered within the state, region, and local area; information from surrounding states will also be used. The data gathered will be based on an occupational cluster or industry.

Once data have been collected and evaluated, programs will be selected for development based on the availability of similar programs and the agreement of potential programs with the state's mission for the TIs. There will be continued disagreement regarding whether to consider the cost of the program or the time needed for a program to become fully operational as bases for starting a program.

Factors affecting the location of a program will be the availability of existing facilities, equipment, and staff; the location of potential students; the location of jobs; and equal geographic access of students to programs. Continuing debate will center on whether the location of on-the-job training resources should be a factor in locating a program.

Unlikely to happen

Needs assessment data to determine which programs should be offered in the TI curriculum will not include information on the perceived value of the occupation to society, community support for a program, or the cost of operating a program. National or international data will not be considered. A single company or firm will not be the basis upon which the need for a program is established.

Program Access

L *ikely to happen*

Program access will be governed by the following principles: (1) programs should be open to people based on their interests and their ability to benefit from training, and (2) all programs should be open to all people. Debate will persist over whether non-traditional students should be encouraged to enroll in programs for occupations that have not traditionally employed members of their group.

Student recruitment will be concentrated in the state, region, and local area. Controversy will continue on whether to focus student recruitment on a single company or firm. Admissions policies will be controversial. There will be no agreement on which criteria to use to admit students, due to different groups promoting different criteria.

U *nlikely to happen*

Program access will not be governed by the principle that people similar to those already in the occupation should be encouraged to enroll. Student recruitment will not be conducted on a national basis. Admissions policies will not consider that people should be admitted based on their economic need for employment.

Articulation Among Programs and Institutions

L *ikely to happen*

Program planning will include the cooperation of a number of different groups. Planning will include business and industry, the SBVTE, other TIs, labor unions and professional associations, the Minnesota Department of Jobs and Training, federal and state agencies, and community

colleges. Debate will continue on whether to include secondary schools, the Minnesota State Board of Education, or private vocational schools in such planning.

The seven groups (listed above) that are involved with program planning will also participate in offering programs. There will be controversy over whether to involve the Minnesota State Board of Education or the secondary schools in offering programs.

***Unlikely** to happen*

Program planning will not include the cooperation of four-year colleges and universities. Also, four-year colleges and universities and private vocational schools will not be involved with offering programs.

Program Purpose

***Likely** to happen*

Programs will be developed with four primary purposes in mind: initial training, retraining, updating, and remediation. One additional goal will be to prepare students to be good citizens. The issue of whether students should be helped to develop basic skills will remain undecided.

***Unlikely** to happen*

Programs will not be developed with the purpose of providing a general education.

Content Identification

L *ikely to happen*

The content to be taught in programs will be identified by focusing on: job clusters; content generalizable to many firms or companies; and subject matter related to many jobs, as well as to specific jobs. The question of whether to focus on content specific to a particular firm or company will remain a subject for debate.

Content will be identified using a variety of different methods: interviewing people who perform the job, interviewing employers, discussions with advisory committee members, observing people performing the job, reviewing job descriptions, reviewing task listings, and consulting subject matter experts. No clear direction will develop on whether to use textbooks and other publications as a basis for identifying content.

All three major domains of content will be included in a program: cognitive skills, psychomotor skills, and affective skills.

U *nlikely to happen*

None of the alternatives presented for identifying content was considered unimportant.

Evaluation of Student Learning

L *ikely to happen*

Students in programs will be evaluated with the following evaluation goals in mind: to verify skill mastery, to motivate students, and to record student progress. Evaluations will assess performance skill, under-

standing of concepts and theory, and attitude. Methods for evaluating student learning will include skill performance tests, instructor observations, written tests, oral tests, and attitude performance tests.

***Unlikely** to happen*

Students in programs will not be evaluated with the goal of determining the extent to which their learning compares to other learners.

Program Format

***Likely** to happen*

Most programs will be located at the TI itself, in business or industry related to the program area, or other schools. Whether to use conference centers or hotel settings, or students' homes will remain controversial. Programs will be offered during the evening from Monday through Friday, and during the day from Monday through Friday. There will be continued debate over whether to offer programs during the day on weekends.

Four program formats will be used to organize the programs:

- Programs broken down into courses
- Programs offered with certificates of completion or diplomas
- Short intensive courses to teach limited skills
- Programs offering an associate of applied science degree

There will be continuing debate as to whether to offer coordinated day school and adult extension programs, in which people can take components of either program and receive credit toward the other, or to offer programs only as total programs.

Lessons within the programs will be delivered using a number of lesson delivery formats:

- Computer-assisted instruction
- Traditional format of instructor-delivered instruction (e.g., live lectures and demonstrations)
- Modularized instruction (instruction packaged as learning modules, which can be either partially or fully used by individual students)

The use of teleconferencing will continue to be debated.

***Unlikely** to happen*

Programs will not be offered 24 hours a day from Monday through Friday, during the evening on weekends, or 24 hours a day on weekends.

Lesson Structuring

***Likely** to happen*

Lessons to present content to learners will include practice, demonstrations (showing), instruction on understanding procedures, feedback, evaluation, and instruction on related theory. Lessons will be defined in terms of the instruction necessary for a person to master a behavior or task, as contrasted with being defined in terms of a prescribed amount of instructional time.

A variety of methods will be used to deliver content, including demonstrations, practice, on-the-job instruction, computer-assisted instruction, simulations, reading, cooperative learning, and lectures. The use of role-playing will continue to be debated.

U *nlikely to happen*

Lessons will not be defined in terms of a specific amount of instructional time (e.g., hours, one day). Individual research will not be used as an instructional method.

Learning Resources

L *ikely to happen*

A wide variety of learning resources will be used to implement instruction. They will include the following, listed in priority order:

1. Tools and equipment (job-related)
2. Goods and materials (job-related)
3. Video tapes
4. Instructor-developed instruction sheets
5. Interactive video
6. Learning modules
7. Manufacturers' manuals
8. Telecommunications
9. Textbooks
10. Computers
11. Transparencies
12. Slides
13. Audio tapes
14. Journal articles

U *nlikely to happen*

None of the alternatives offered was considered to be important.

Program Evaluation

Likely to happen

A number of groups will participate in judging the overall effectiveness of programs. They will include employers and potential employers of graduates, program graduates, the TIs themselves, and other vocational educators. Debate will continue over the role of the SBVTE in evaluating programs.

Program evaluation data will include:

- Employers' ratings of graduates
- The extent to which graduates are placed in related jobs
- Graduates' ratings of the program
- Student achievement upon program completion
- Graduates' job satisfaction
- Ratings of the program by other educators

Debate will continue on whether to use data about benefits to graduates in the workplace of having completed the program, or student completion rates. The program evaluation data will be gathered at a variety of times: one year or more after a class has graduated, at the conclusion of the program, and during the program.

Unlikely to happen

The U.S. Department of Education will not participate in judging the overall effectiveness of programs.

Relationship of the Scenario to Assumptions About the Future

Most of the anticipated characteristics presented in the scenario correspond well with the assumptions about the future identified by this study. This section of the summary is aimed at highlighting differences between assumptions about the environment within which postsecondary vocational education is expected to occur, and the preferred characteristics of the curriculum as revealed by this study. This section is not meant to be critical or judgmental in terms of whether the differences are "good" or "bad." At times it may be wise to develop the curriculum based on the assumptions; at times it may not be. Each discrepancy needs to be reflected upon and evaluated.

1. The assumptions about the future clearly reflect an increased participation of many groups in the decision-making processes. Yet the groups of key decision makers did not consider it important to involve private vocational schools or four-year colleges and universities in the curriculum development processes of the TIs.

2. The assumptions indicated that labor markets are becoming more national and international in scope. Yet these markets are not described as important considerations in the needs assessment and recruitment components of the curriculum development process.

3. The assumptions indicate that, in light of limited resources, investments of resources must be based on their cost-effectiveness. Yet program cost was not considered to be important in determining which programs should be included in the TI curriculum.

4. The assumptions indicate that adult populations will be needing access to additional education at unusual times in order for them to prepare for and maintain employment. Yet programs would not be available 24 hours a day or on evenings during weekends.

Policy Implications

This study focused on the context and characteristics of postsecondary vocational education in the year 2000. The goal was to provide policy makers and curriculum developers with a framework within which to affect vocational curriculum in the future. Key implications for policy are:

1. The analysis of disagreements among all of the key decision-making groups about the importance of various characteristics revealed relatively little disagreement. However, the disagreement between both the instructors and employers and the rest of the groups was substantial, although not consistent. This disagreement is of increased concern when one considers that instructors and employers disagree most often with TI directors and SBVTE staff (approximately 21 percent of the time).

   These differences imply that the primary deliverers of the curriculum (the instructors) and the consumers of the students of the curriculum (the employers) tend to disagree with the policy developers and those who implement policy (the TI directors and SBVTE staff) on the future characteristics of the TI curricu-

lum, although those differences are not consistent among the groups.

Tension between the instructors, and SBVTE staff and TI directors is somewhat expected. Instructors would be called upon to institute changes directed by the policy makers and those who implement policy (SBVTE staff and TI directors). Understanding and managing this tension will be important. The discrepancy between the employers, and the SBVTE staff and TI directors is not as understandable.

Further investigation is needed to determine why this tension exists. Perhaps policy makers, who are charged with bringing about and managing change, need to provide better information and rationale to the employers and instructors. Or perhaps the groups really do disagree on the best curriculum to serve the needs of the students. An alternative explanation may be that instructors do not know how to implement the new curriculum directions and are afraid to venture forth, thus indicating a need for more and improved staff development. On the other hand, policy makers may need to re-evaluate their directions in terms of what will satisfy the needs of the employer groups to be served.

2. The role of the SBVTE in the evaluation of vocational programs was not clear. Some groups rated its role as important, while others rated it as unimportant. Clarification of the roles and responsibilities of the SBVTE regarding evaluation might be useful.

3. Although this study sheds light on the nature of the assumptions that may affect vocational curriculum, and the types of characteristics that can be manipulated to bring about curriculum change, little systematic information about these topics is available in the literature. If curriculum is at the heart of providing an educational program, it is essential to have information concern-

ing what societal factors might influence that curriculum and how to implement desired change. Therefore, additional funds and research should be directed at these areas.

4. Even after years of policies and affirmative action concerning the need to incorporate non-traditional students into programs, decision makers still disagree substantially about the desirability of doing so. Additional efforts in this area may be needed.

5. The data revealed significant controversy over whether to design vocational programs for specific firms. Policy promoting this practice may need to be clarified or re-examined.

6. The groups did not agree on the importance of any of the criteria for admission. This total lack of agreement on admission criteria may need resolution as a basis for communicating clearly with potential students and the public.

7. The decision-making groups differed substantially on 20 of the 169 items regarding vocational curriculum. Some groups rated these 20 items as important and others rated them as unimportant. If any of these items are viewed by policy makers as important, procedures should be implemented to resolve the tension between groups.

Appendix

The study was conducted in three parts. Different **methods** of research were used for each part. The first sub-study involved a review of the literature and consultation with the project advisory committee. The study identified **determinants of societal changes** that might affect future postsecondary vocational education, and assumptions regarding those determinants. This sub-study provided an assumed context within which postsecondary vocational education will operate in the year 2000. Ninety-two assumptions were categorized within seven determinants. The seven determinants were cultural values, information-ideas, demographics, economics, technology, legislative and political factors, and institutional factors.

Through a review of the literature and validation by the project advisory committee, the second sub-study identified **curriculum characteristics** that could be used to define a desired curriculum, and about which choices could be made by decision makers. The characteristics focused on the structure of the curriculum rather than on the types of occupations to be taught. Characteristics included such concepts as the time of day programs should be available, and the geographic areas that should be used in planning. Ten categories of curriculum characteristics were defined, along with 29 subcategories focusing on specific characteristics. Also identified were 169 alternative ways of defining the characteristics.

The third sub-study assessed the perceptions of ten key **decision-making groups** regarding the importance of each of the curriculum characteristics for Minnesota's TIs in the year 2000. Ten groups were identified and samples drawn from each. The ten groups included TI directors, assistant directors, adult directors, curriculum specialists, financial aid coordinators, counselors, instructors; employers; and SBVTE members and staff.

A total of 408 respondents, or 82 percent of those sampled, completed a mail questionnaire containing 169 items regarding each of the 29 sub-characteristics. Respondents rated each item from "1—not very important" to "5—very important," or "0—not a possibility to consider." The overall importance of an item for future curriculum was determined by calculating the average mean from the means of the individual groups. This technique was used in order to give each of the ten groups equal emphasis in determining the importance of the item. In addition to calculating the average mean, differences in the ratings of the various groups were tested for significance using analysis of variance (ANOVA).

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